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09/819,612	03/29/2001	Akio Suto	Q60558	4173

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EXAMINER

LEROUX, ETIENNE PIERRE

ART UNIT	PAPER NUMBER
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2161

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Please find below and/or attached an Office communication concerning this application or proceeding.



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09/819,612

3/29/2001

AKIO SUTO

Q60558

EXAMINER

Etienne LeRoux

ART UNIT

PAPER

2161

20060825-A

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Please find attached Examiner's Answer which is in response to Amended Appeal Brief filed 9/27/2006. Please also find attached Information Disclosure Statement.

E. LeRoux
Primary Examiner

11/8/2006



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/819,612
Filing Date: March 29, 2001
Appellant(s): SUTO, AKIO

MAILED

NOV 15 2006

Technology Center 2100

Susan Perng Pan
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/23/2006 appealing from the Office action mailed
June 6, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,367,029	Mayhead et al	4-2002
5,758,067	Makinen et al	5-1998
5,347,463	Nakamura et al	9-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 7-9 and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pat No 6,367,029 issued to Mayhead et al (hereafter Mayhead).

Claim 1:

Mayhead discloses:

- a database memory for storing a database which is updated by the distributed data processing process performed by said client [*file store primary 1, Fig 2, col 5, lines 12-25*]
- a replication trigger generator for generating a replication trigger based on the updating of said database by the distributed data processing process performed by said clients connected to one of the servers [*replication manager 8, Fig 2, col 7, lines 3-20*]

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- an updating information transfer unit for transferring updating information of said database to another one of the servers based on said replication trigger [*file store backup 2 Fig 2 and col 5, lines 45-60*]
- a database updating processor for updating said data base based on the updating information transferred from the other server [*file server system 60, Fig 1, col 4, lines 53-58*]
- an archive data memory for storing updating information of said database as archive data [*logger 10, Fig 2, col 9, line 62 through col 10, line 3*]
- wherein at least part of said database is recovered using said archive data [*col 2, lines 59-64*]

Claim 2:

Mayhead discloses a connection information manager for managing connection information of a connection destination server to which the clients are connected and a connection information changer for changing the connection information of the connection destination server, the arrangement being such that if any said server suffers a fault, said connection information is changed by said connection information changer, and the distributed data processing process performed by the clients connected to the server which suffers the fault is continued under the management of another normal on of the servers to which said connection information is changed [col 12, lines 31-39]

Claim 7:

Mayhead discloses:

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- updating a database according to the distributed data processing process performed by said clients [file store primary 1, Fig 2, col 5, lines 12-25],
- generating a replication trigger based on the updating of said database by the distributed data processing process performed by aid clients connected to one of the servers [replication manager 8, Fig 2, col 7, lines 3-20];
- transferring updating information of said database to another one of the servers based on said replication trigger [file store backup 2, Fig 2 and col 5, lines 45-60]
- updating said database based on the updating information transferred from the other server [logger 10, Fig 2, col 9, line 62 through col 10, line 3]
- storing the updating information of said database as archive data [col 9, line 62 through col 10, line 3]
- wherein at least part of said database is recovered using said archive data [col 2, lines 59-64]

Claim 8:

Mayhead discloses if any of said servers suffers a fault, changing a connection destination of the clients connected to the server which suffers the fault to another normal one of the servers; and continuing the distributed processing process performed by the clients connected to the server under the management of the other normal server [col 12, lines 31-39].

Claim 9:

Mayhead discloses shutting off all the clients connected to said server, setting again information of the connection destination of the clients, connecting the clients to said server

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according to the set information and resuming the distributed data processing process in a normal connection state [col 2, lines 30-64].

Claim 16:

Mayhead discloses wherein the clients connected to any one of said servers are different from the clients connected to another one of said servers [col 2, lines 59-64]

Claim 17:

Mayhead discloses wherein said database updating processor in each of said servers updates said database based on the updating information, the updating information is generated upon an updating request from one of said clients connected to said server, and said database updating processor transfers the updating information of said database to another one of said servers [col 5, lines 45-60].

Claim 18:

Mayhead discloses wherein said database updating processor determines whether the updating information is generated by said server or is transferred from the other one of said servers, and wherein when it is determined that the updating information is transferred from the other one of said servers, a replication trigger generation inhibition is issued to said replication trigger generator [col 2, lines 45-50]

Claim 19:

Mayhead discloses wherein the updating of the database occurs prior to the generating of the replication trigger [col 8, lines 35-45, col 7, lines 45-50]

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3, 4, 10-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayhead as applied to claims 1, 2, 7-9 and 16-18 in view of US Pat No. 5,758,067 issued to Makinen et al (hereafter Makinen).

Claim 3:

Mayhead discloses the elements of claim 1 as noted above.

Mayhead discloses a backup data memory for storing back-up data produced by the backup process performed while said database is in operation wherein said database is recovered using said backup data and said archive data [col 2, lines 59-64].

Mayhead fails to disclose a backup processor for performing backup process at predetermined time intervals while said database is in operation.

Makinen discloses a backup processor for performing backup process at predetermined time intervals while said database is in operation [col 3, lines 1-18].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mayhead to include a backup processor for performing backup process at predetermined time intervals while said database is in operation as taught by Makinen.

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The ordinarily skilled artisan would have been motivated to modify Makinen per the above for the purpose of ensuring that reliable system recovery can be performed [col 3, lines 1-18].

Claim 4:

Mayhead discloses the elements of claims 1 and 2 as noted above.

Mayhead fails to disclose a backup processor for performing backup process at predetermined time intervals while said database is in operation a backup memory for storing backup data produced by the backup process performed while said database is on operation.

Makinen discloses a backup processor for performing backup process at predetermined time intervals while said database is in operation a backup memory for storing backup data produced by the backup process performed while said database is on operation [col 3, lines 1-18].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mayhead to include a backup processor for performing backup process at predetermined time intervals while said database is in operation a backup memory for storing backup data produced by the backup process performed while said database is on operation as taught by Makinen.

The ordinarily skilled artisan would have been motivated to modify Mayhead per the above for the purpose of ensuring that reliable system recovery can be performed [col 3, lines 1-18].

Claim 10:

Mayhead discloses the elements of claim 7 as noted above.

Mayhead fails to disclose performing a backup process at predetermined time intervals while said database is in operation and saving backup data produced by the backup process performed; generating and saving archive data based on the updating information of the database which is generated after the backup process performed while said database is in operation has started; and if one of said servers suffers a fault, copying said backup data of another normal one of the servers, and recovering the database from said archive data of the other normal server.

Makinen discloses performing a backup process at predetermined time intervals while said database is in operation and saving backup data produced by the backup process performed; generating and saving archive data based on the updating information of the database which is generated after the backup process performed while said database is in operation has started; and if one of said servers suffers a fault, copying said backup data of another normal one of the servers, and recovering the database from said archive data of the other normal server [col 3, lines 1-18].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mayhead to include performing a backup process at predetermined time intervals while said database is in operation and saving backup data produced by the backup process performed; generating and saving archive data based on the updating information of the database which is generated after the backup process performed while said database is in operation has started; and if one of said servers suffers a fault, copying said backup data of another normal one of the servers, and recovering the database from said archive data of the other normal server as taught by Makinen.

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The ordinarily skilled artisan would have been motivated to modify Mayhead per the above for the purpose of that reliable system recovery can be performed [col 3, lines 1-18].

Claim 11:

The combination of Mayhead and Makinen discloses the elements of claims 7 and 10 as noted above.

The combination of Mayhead and Makinen discloses copying said backup data while the clients are being continuously operated by said other normal server [Mayhead col 2, lines 30-50]

Claim 12:

The combination of Mayhead and Makinen discloses the elements of claims 7 and 8 as noted above.

The combination of Mayhead and Makinen discloses performing a backup process at predetermined intervals while said database is in operation and saving backup data produced by the backup process performed [generating and saving archive data based on the updating information of the database which is generated after the backup process performed while said database is in operation has started, and if one of said servers suffers a fault, copying said backup data of another normal one of the servers, and recovering the database from said archive data of the normal server [Makinen, col 3, lines 1-18]

Claim 14:

The combination of Mayhead and Makinen discloses the elements of claims 1 and 3 as noted above.

The combination of Mayhead and Makinen discloses wherein a file copy operation is used to store the backup data in the backup data memory [Fig 1 and col 4, lines 53-67].

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayhead as applied to claims 1, 2, 7-9 and 16-18 in view of US Pat No. 5,347,463 issued to Nakamura et al (hereafter Nakamura).

Claim 5:

Mayhead discloses the elements of claim 1 as noted above.

Mayhead fails to disclose a server for managing one of the clients which is of a production management system which is of the object to be controlled a server for managing one of the clients which is of a process control system which is of the object to be controlled.

Nakamura discloses a server for managing one of the clients which is of a production management system which is of the object to be controlled a server for managing one of the clients which is of a process control system which is of the object to be controlled [Fig 2(A), 65, col 6, lines 22-26].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mayhead to include a server for managing one of the clients which is of a production management system which is of the object to be controlled a server for managing one of the clients which is of a process control system which is of the object to be controlled as taught by Nakamura.

The ordinarily skilled artisan would have been motivated to modify Mayhead per the above for the purpose of providing a source of identical data for use in the event of failure of the primary source of data [col 6, lines 22-26].

Claim 6:

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The combination of Mayhead and Nakamura discloses the elements of claims 1 and 5 as noted above.

The combination of Mayhead and Nakamura discloses wherein each of said servers has independent settings of distributed data processing so that said database can be independently processed in inserting, updating or deleting data [Fig 2(A), 65, col 6, lines 22-26].

4. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayhead as applied to claims 1, 2, 7-9 and 16-18 in view of US Pat No. 6,202,070 issued to Nguyen et al (hereafter Nguyen).

Claims 13 and 15:

Mayhead discloses the elements of claims 1 and 7 as noted above.

Mayhead fails to disclose wherein the replication trigger generator converts an updating SQL into a propagating SQL.

Nguyen discloses wherein the replication trigger generator converts an updating SQL into a propagating SQL [col 25, lines 20-23]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mayhead to include wherein the replication trigger generator converts an updating SQL into a propagating SQL as taught by Nguyen.

The ordinarily skilled artisan would have been motivated to modify Mayhead per the above for the purpose of generating new table primary key values [col 25, lines 20-25] .

Response to Arguments

5. Appellant's arguments filed in Appeal Brief of June 23, 2006 have been fully considered but are not persuasive for the following reasons.

Appellant Argues:

Appellant states in the second paragraph of page 11 the following:

The examiner maintains that Mayhead teaches all features of claim 1. Claim 1 describes a replication trigger generating a trigger based on updating of a database, and updating the database of another one of the servers based on the replication trigger. The examiner contends that the replication manager corresponds to the claimed trigger generator. The examiner is attempting to make a rejection based on the appearance of any replication element without due regard to the remaining claim limitations for that element. In particular, the claimed replication element generates a trigger based on updating a database. By contrast, the replication manager of Mayhead relates to management of operational software components (e.g. a checker or a logger) and management of the system as such components (in nodes) as they enter and exit the system. Therefore, the examiner's reliance on the mere disclosure of the replication manager, without regard to its operations with other system elements, renders the anticipation of claim 1 unsupportable.

Examiner Responds:

Examiner is not persuaded for the following reasons. Appellant states above that claim 1 **describes** (emphasis added) a replication trigger generating a trigger based on updating of a database, and updating the database of another one of the servers based on the replication trigger.

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Unfortunately, Appellant does not consider the claim language of claim 1. For purposes of accuracy of the record, the exact claim language is reproduced below:

a replication trigger generator for generating a replication trigger based on the updating of said database by the distributed data processing process performed by said clients connected to one server.

Mayhead discloses the above limitations as per above Office action but further consideration is given below.

Mayhead in Figure 1 discloses at least Client Apparatus 50 connected to a network which in turn is connected to File Server System 60 which comprises File Store Primary 1 and File Store Backup 2. In accordance with the above claim limitation, Mayhead clearly discloses clients connected to a server and updating of a database which will be interpreted as the primary database. Mayhead's above disclosure clearly reads on the claim limitation **"updating of said database by the distributed data processing process performed by said clients connected to one server."**

Mayhead discloses in column 2, lines 15-30:

According to a second aspect of the invention there is provided a file server system for storing data objects with respective object identifiers and for servicing requests from remote client systems specifying the object identifier of the requested object. The system is constituted by a plurality of replicable components which may or may not be replicated in a given implementation or at a particular point in time. The replication is preferably manageable dynamically so that the degree of replication of each of the replicable

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components may vary during operation. Alternatively the replication levels may be pre-set at the level of the system administrator.

In accordance with the above claim limitation, Mayhead discloses that replication is manageable dynamically with respect to time and degree. Mayhead clearly implies a replication trigger which is implemented at a particular point in time to replicate the data objects in the primary database to one or more backup databases. Mayhead's above disclosure clearly reads on the claim limitation **"a replication trigger generator for generating a replication trigger based on the updating of said database."**

Mayhead discloses in column 2, line 65 through column 3, line 28:

The functions of these components are described further below. A replicated component has one primary copy and one or more back-up copies. Among the replicas of a given component, the primary may change through a process referred to as primary re-election, but there is only ever one primary at any one time for a given component. Generally it is desirable for reliability that replica copies of a given replicated component are each located at different nodes, or at least that the primary and one of the back-ups are located on different nodes. Thus, a given node may be host to the primaries of several different software components and to several back-ups. **Location and handling of replica copies of a given replicable component is under the control of a replication manager** which is a (non-replicable) software component of the file server system. The replication manager is distributed, meaning it can have one of its instances running on each node of the file server system. These instances inter-communicate to maintain coherence. Several or all of the nodes may be provided with direct network connections to the clients to provide redundancy. The network connections may be private or public.

Mayhead per the above clearly discloses replication of the primary copy to one or more backup copies is under the control of a replication manager. Mayhead's above disclosure clearly reads on the claim limitation **"a replication trigger generator for generating a replication trigger based on the updating of said database."**

Examiner provides further support as below for the approach to the claim interpretation of above limitations. Examiner is required to give claim language its broadest reasonable interpretation in light of the supporting disclosure as would be fairly conveyed to one of ordinary skill in the pertinent art. Appellant points to Figure 1 and pages 10 and 11 for support of the claimed replication trigger. The specification on page 11, lines 7-9 includes the following:

a replication trigger generator 132 for generating a data replication trigger based on a database updating process carried out by the clients 20, 22, 24, 26.

The disclosure does not provide an explicit and deliberate definition of the claimed replication trigger such that examiner would be required to adopt such definition when interpreting the claimed replication trigger. In fact, careful reading of the references provided by Appellant will not even identify intrinsic evidence of the claimed replication trigger. The disclosure does not even provide or suggest examples of the function[ing] of the claimed replication trigger.

Absent above clear definition of replication trigger, replication trigger will be interpreted in the context of the claims themselves, dictionary definitions (specialized and generic) and the level of ordinary skill (from treatises, a search of the prior art and other specialized information sources) in order to determine the broadest reasonable interpretation of the claimed replication trigger.

Trigger is defined as:

In a database, an action that causes a procedure to be carried out automatically when a user attempts to modify data. A trigger can instruct the database system to take a specific action,

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depending on the particular change attempted. Incorrect, unwanted, or unauthorized changes can thereby be prevented, helping to maintain the integrity of the database.¹

Replication is defined as:

In a distributed database management system, the process of copying the database (or parts of it) to the other parts of the network. Replication allows distributed database systems to remain synchronized.²

Examiner's interpretation of the claimed "replication trigger based on the updating of the database" is proper considering the lack of Appellant's explicit and deliberate definition and hence reliance on prior art definitions for above claim language.

Appellant Argues:

Regarding Group 2, Appellant argues the following in the fourth paragraph of page 15:

With further regard to claim 19, this claim describes updating of the database occurs prior to generation of the trigger. The Examiner cites cols. 7-8 of Mayhead to teach this feature.

However, the cited portion at col. 7 merely describes software component replication, not data replication from server to server. The cited portion at col. 8 teaches generation of a signature for comparison prior to writing of data, which (at best) is the opposite of the order of operations of claim 19. therefore, claim 19 is patentable for this additional reason.

Examiner Responds:

Examiner is not persuaded. Mayhead discloses the following in col. 8, lines 23-45:

The primary receives a new client request for a specific service. The request may come directly from the client over the network link 56 or via one of the back-ups. (Back-ups may be connected directly to the network and may then receive client request. New requests will be recognized as such by the back-ups and forwarded to the primary). The

¹ Microsoft Computer Dictionary, Fifth Edition

² Microsoft Computer Dictionary, Fifth Edition

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primary prepares for execution of the request by performing consistency and accessibility checks, and by computing signatures for the hr-objects specified in the request. The replication manager informs the logger and checker of the request. (The logger and checker referred to here will be the primary logger and primary checker in the case that the logger and checker are replicated). The logger then creates a log entry and the checker checks the request's signatures. After this has been successfully completed, the primary of the service to be replicated forwards the replication request to any back-ups it may have. The back-ups then perform the request and inform the primary of the outcome. If all outcomes are successful, the primary performs the request locally, for example by retrieving or updating the stored file data, and then replies to the original requester, i.e. the client, returning the result of the requested operation.

Mayhead per the above clearly discloses that the primary is at all times in control of the replication process. The primary causes the initial storage in a database and then, subsequently a trigger is created to cause replication of the data from the database (primary database) to one or more secondary databases (backup databases). Mayhead's above teaching clearly reads on the claim 19 limitation **"wherein the updating of the database occurs prior to the generating of the replication trigger."**

Appellant Argues:

Regarding groups 3-5, Appellant states that the cited prior art does not cure the deficiencies of Mayhead.


Examiner Responds:

Examiner is not persuaded. Appellant is referred to above response by examiner.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


Conferees
Jeffrey Gaffin
SPE 2165

Tim Vo

SPE 2168


Etienne LeRoux
AU 2161

An Appeal conference was held on August 30, 2006 with the above in attendance.